

### **ABSTRACT**

An irrigation system provides fertilization by distributing a chemical additive onto a soil such as a golf course. The irrigation commences with a flowline carrying water, and a pump pumps a chemical additive directly into the flowline. The chemical additive mixes with the water, and the mixture ultimately reaches a sprinkler head where it is sprayed onto the soil for treatment. A reservoir, pump, motor, and control system are enclosed within a housing. The reservoir holds an additive and is connected to the pump, allowing the additive to flow from the reservoir to the pump. The motor operates the pump, which pumps the additive into the flowline. At least one sensor monitors at least one characteristic of the additive. The feedback control system reads the feedback data from the sensors, controlling the flow rate of the additive through the pump into the flowline.